

IAP8 Rec'd PCT/PTO 09 DEC 2005

**SURFBOARD STORAGE COMPARTMENT****Field of Invention**

5 The present invention relates to storage compartments and, in particular, to a storage compartment for mounting in a surfboard or the like for providing a watertight storage of objects placed within the compartment.

**Background of the Invention**

Participants in surfing or other board sports, often need to carry objects such as keys or money into the surf. It is not always possible to leave keys etc. on dry land. Leaving car keys hidden outside a car makes it vulnerable to theft.

10 There have been previous attempts to devise storage containers adapted to be mounted on or into surfboards, kneeboards or the like. Some leg ropes and surf garments have pockets for storing small items such as keys. However, prior art devices and pockets are not well adapted to provide a large, reliable, water tight enclosure for storing state of the art automobile keys that have electronic 15 components such as radio or infrared transmitters built into them for controlling an automobile security system. This is particularly true of devices that can be installed into a surfboard after manufacture.

The term waterproof and watertight should be interpreted as being defined by the practical considerations of the invention, surfing and similar activities.

**20 Objects and Summary of Invention**

It is therefore an object of the present invention to provide a water tight storage compartment suitable for mounting in or imbedding in a surfboard or the like for storing objects therein and large enough to store larger objects like automobile keys that include electronic components.

25 According to one aspect of the present invention, there is disclosed a storage compartment for mounting in a surfboard or the like. The compartment is waterproof and may include a cavity extending therefrom in a lateral direction.

In a preferred form, an open end of the compartment has a pair of upright rims between which a skirt of the lid is received.

In one form, an inner rim supports an elastomeric seal that also contacts the lid or the skirt or both of these and an outer rim has internal threads that cooperate with external threads formed into an exterior surface of the skirt.

5 In a preferred form, the seal has one or more circumferential sealing ribs for sealing against an inner surface of the skirt.

#### Brief Descriptions of the Drawings

One embodiment of the present invention will now be described with reference to the accompanying drawings.

10 Fig 1 is an exploded perspective view of a storage compartment apparatus of a preferred embodiment;

Fig 2 is a side elevation of the storage compartment;

Fig 2a is a side elevation of the main body;

Fig 3 is perspective view of part of the main body of the storage compartment apparatus of Fig 1 also showing an installation component;

15 Fig 4 is a cross section of the seal and adjoining components; and

Fig 5 is a cross section of the device installed in a board.

#### Best Mode of Carrying Out the Invention

20 As shown in Figure 1, a storage compartment apparatus or assembly 10 comprises a main body 11, and a lid 12. In preferred embodiments, the main body 11 is generally cylindrical and includes a round main opening 13 that is surrounded by a pair of upright rims 14, 15. The inner rim 14 and outer rim 15 define a circumferential channel because they are interconnected by a floor section 16.

25 In particular embodiments of the invention, an elastomeric seal 17 is supported by the inner rim 14. As will be explained with reference to Figure 4,

the lid 12 has a skirt 18 that fits between the inner and outer rims 14, 15 and seals advantageously against the elastomeric seal 17.

5 In one particularly preferred form, the cylindrical wall 19 includes an opening or mouth 20 that provides access into a laterally extending cavity 21. In some embodiments, the cavity 21 is a separate component which is joined to the main body during installation, as will be explained.

As shown in Figures 2 and 2a, the outer rim 15 has an upper edge 22 that is intended to be generally flush with the upper surface of deck of a surfboard or watercraft as illustrated in Figure 5. As seen in this profile view, the diameter of 10 the outer rim 15 is somewhat larger than the diameter of the lower portion of the main body 11. Thus, a step is formed by the floor 16 that extends between the inner and outer rims 14, 15. As shown in this illustration, the opening or mouth 20 through the sidewall of the main body is located below the step formed by the underside of the floor 16. The opening accommodates the shape of the exterior of 15 the cavity 21. The open end of the cavity 21 is shaped to conform to the curvature of the mouth 20. The fit between the mouth 20 and the cavity 21 is a loose sliding fit that can be later sealed with resin during installation. The cavity is nearly as wide as the main compartment but generally flattened in cross section so as to fit between the deck and the bottom glass layers of a modern surfboard. The cavity is 20 shown as having an axially extending pin 25. The pin is useful during installation as will be explained. The lid 12 is shown as having an upper surface that is characterised by raised features 23. In some embodiments, the raised features 23 are moulded in place using a polymer such as SANTROPRENE™. In this way, the maximum elevation of the lid above the deck of the surfboard is kept to a 25 reasonable minimum while still providing adequate grip for opening and closing.

As shown in Figures 3 and 4, the inner and outer upright rims 14, 15 define 30 a channel that also includes the floor 16 that extends between the rims. The inner rim 14 is generally coplanar with the sidewall 19 of the main body. The inner rim 14 is also generally lower in height than the outer rim 15. The lid 12 includes peripheral skirt 18. When fully closed, the skirt 18 extends into the channel defined by the rims 14, 15. In preferred embodiments, an exterior surface of the skirt 18 includes threads 41 that engage with co-operating threads 42 which are formed into the interior surface of the outer rim 15. These co-operating threads form the first barrier against the entry of water from the exterior. In preferred

embodiments, a bottom edge 43 of the skirt 18 contacts the internal surface of the floor 16 and creates a second barrier against the entry of water when the lid is fully closed.

As shown in Figure 4, an inverted "J" shaped elastomeric seal 17 contacts 5 both the upper edge of the inner rim 14 as well as the external surface of the inner rim 14. In this way, the seal 17 contacts at least the underside of the lid 12. In preferred embodiments, the seal 17 includes circumferential lips or ribs 44, shown here as being two in number inclined downwardly and generally parallel with one another. These ribs contact the inner surface of the skirt 18 and create 10 additional barriers to the entry of water into the compartment. Because lid contact with the upper rib 44 seals the interior of the compartment 10, further advance of the lid 12 increases the internal pressure, providing a more secure water seal.

As shown in Figure 5, the device 10 is installed into a main recess 50 that 15 is formed into an article such as a surfboard. As shown here, the upper edge 22 of the outer rim 15 is installed as being generally flush with the top surface or deck 51 of the surfboard. A second recess 52 communicates with the main recess 50 to accept the lateral cavity 21. As shown here, the pin 25 serves to anchor and locate the cavity 21 into the board's foam during installation, as will be further 20 explained.

In some embodiments of the invention, an installation kit is provided to an owner or to a professional installer. A professional installation will generally necessitate an electric router and router bits such as a Carbitool™ T8224B or Carbitec™ 152007 Inverted Flush Trimmer. Also desirable will be sandpaper, a 25 scraper, resin, colour pigment and filler (if required), a small screw driver or scribe, masking tape, a pencil, safety equipment and vacuum cleaner as required as well as an installation kit including a router guide and a knife with an oval shaped cutting blade for making the secondary recess 52.

Installation dictates that the board should be placed on a flat level location 30 with good ventilation. A location is then identified for where the device will be placed on the surfboard or other watercraft. The installation location is then covered with masking tape, including an area of about 50mm around the exact location. This acts as surface protection for the board. The tape is marked so as

to indicate the location of the main recess 50 which will be drilled or routed into the board. In preferred embodiments an installation plate is placed over the area and aligned with the reference marks. The installation plate provides a guide for the router and may be affixed to the board with suction cups or the like. In 5 particularly preferred embodiments, the installation plate seals against the work surface so that the air between the installation plate and the board can be removed with a vacuum hose enabling the plate to be pulled down onto the surface of the board during operation of the router. With the plate well secured, the router or hole saw is used to cut, the first and larger diameter hole using an 10 inside circle of the plate as a guide. Once the circle has been cut (to about 10mm deep), the small fibreglass disk left in the middle is removed and then the rest of the foam is routed out. In preferred embodiments, the depth of the first router blade cut is about 2mm. As this point a secondary guide ring is attached to the plate and the cutting step is repeated, routing out the centre hole to accept the 15 main body 11 of the device. This main recess depth is about 27-29mm from the top of the board 51. The main body 11 is then inserted into the hole with the opening or mouth 20 oriented preferably along the longitudinal axis of the board, or transverse to it if it would interfere with the stringer. A knife tool is used to cut into the foam to create the secondary recess 52 for receiving the cavity 21. The 20 knife tool is preferably like a tube that is slightly larger than the exterior of the cavity 21. One end of the knife tool is sharpened so that it can cut into the sidewall of the main recess to form the second cavity 52. The other end of the knife tool supports a handle. The resulting core is removed with a small screwdriver or scribe. The lateral cavity 21 is then inserted to test that it fits 25 correctly. The cavity 21 is inserted with general pressure to push it all the way into the board stopping just short of being flush with the inside face of the already installed base unit. The pin 25 creates a pilot hole in the foam.

The exterior of the device should be lightly sanded on the bottom and sides to improve adhesion and to prevent resin entering the head on the base unit. 30 Here an installation ring 70 (see Figure 3) is inserted into the main opening temporarily and has a flange 71 that extends past the outer rim 15. The flange 71 keeps the outer rim flush with the deck 51 and is removed after installation. A small amount of resin containing Q-cells or similar material comprises a white paste is applied to the bottom of the main recess 50. With the lateral cavity 21 35 partially inserted through the opening or mouth 20, the main body is lowered

into the main recess 50 making contact with the adhesive at the bottom. The lateral cavity 21 is then pushed through the opening or mouth 20 into its fully installed position with the internal surface of the recess 21 generally flush with the internal surface of the main body 11. Remaining gaps can be filled.

5 While the invention has been disclosed with reference to particular details of construction and particular materials, these should be understood as having been provided by way of example and not as limitations to the scope of spirit of the invention.

10